

RESPONSE UNDER 37 C.F.R. § 1.111
U.S. APPLICATION NO. 10/669,638
ATTORNEY DOCKET NO. Q77712

REMARKS

Claims 1-47 are all the claims pending in the application.

Summary of the Office Action

Claims 1-10, 15-26, and 31-47 stand rejected under 35 U.S.C. § 103(a) and claims 11-14 and 27-30 contain allowable subject matter. Applicant respectfully incorporates by reference arguments set forth in the Amendment under 37 C.F.R. § 1.111 filed on November 4, 2005.

Claim Rejections

The Examiner has rejected, under 35 U.S.C. § 103(a): (1) claims 1, 4, 7, 8 10, 15, 18, 21, 22, 24-26, 31, 34, 37, 38, and 40-42 as being unpatentable over *Yamaguchi et al.* (US 6,270,210; hereinafter "*Yamaguchi*") in view of *Young et al.* (US 2003/0015036 A1; hereinafter "*Young*"); and (2) claims 2, 3, 5, 6 9, 16, 17, 19, 20, 23, 30, 33, 35, 36, and 39 as being unpatentable over *Yamaguchi* in view of *Young* in further view of *Usui et al.* (US 6,536,861; hereinafter "*Usui*"). These rejections are respectfully traversed.

As a preliminary matter, the rejection of claim 30 under 35 U.S.C. § 103(a) is believed to be in error, since the Examiner indicated that claim 30 contains allowable subject matter (*see* Summary of the Office Action and page 10 of the Office Action). This response at least initially focuses on claim 1.

Independent claim 1, among a number of unique features, recites "an amount of remaining liquid is detected based on a vibration characteristic of said vibration activating and detecting unit which depends on a distance between said vibration activating and detecting unit and said rigid member."

The Examiner takes the position that *Yamaguchi's* ink depletion detecting plate 20 allegedly discloses a rigid member, as set forth in claim 1 (*see* page 2 of the Office Action). The Examiner concedes that *Yamaguchi* fails to teach or suggest claim 1's recitation of a "vibration activating and detecting unit." The Examiner, however, alleges that *Young's* resonating means 24 and sensing means 30 disclose these unique features of claim 1 (*see* page 4 of the Office Action). Applicant respectfully disagrees.

Applicant respectfully submits that *Young's* acoustic volume indicator 10: (1) causes the tank 12 to resonate; (2) detects the resulting resonance signal from the tank 12; and (3) determines a corresponding liquid level in the tank 12 due to the changing natural frequency of the tank. In other words, *Young* utilizes natural frequency of the tank to determine the liquid volume in the tank (§ 16) and not based on distance between the resonating means 24 and sensing means 30 and a rigid member. That is, the amount of remaining liquid is determined in *Young* in a manner independent of the distance between resonating means 24 and sensing means 30 (compared by the Examiner to the "vibration activating and detecting unit") and any "rigid member." In fact, there is no teaching or suggestion of any relative movement of these parts in *Young*.

This argument stands unrebutted and is not addressed in the Office Action (*see* pages 11 and 12 of the Office Action). Applicant respectfully submits that the combined disclosure of *Yamaguchi* and *Young* do not disclose or suggest the unique features of claim 1.

Moreover, in response to Applicant's arguments that one of ordinary skill in the art would not have been motivated to combine the references, the Examiner alleges that since both

references are related to detecting liquid within a container, one of ordinary skill in the art would have been motivated to combine the references (*see* page 11 of the Office Action). Applicant respectfully disagrees. Applicant respectfully submits that there is no motivation to combine the references in the manner suggested by the Examiner and *Young* explicitly teaches away from the disclosure of *Yamaguchi*.

The Examiner alleges that one of ordinary skill in the art would have been motivated to combine the references for “the purposes of providing an accurate measurement of liquid level within the liquid container” (*see* page 5 of the Office Action). Applicant respectfully submits that even if the two references are somehow combined, it would not result in a more accurate measurement of liquid level. That is, *Young*’s resonating means 24 and the sensing means 30 would not improve *Yamaguchi*’s detection structure.

In short, one of skill would not utilize both the ink depletion detecting plate 20 of *Yamaguchi* and acoustic volume indicator 10 of *Young* in a measurement system because: (1) they are alternative, rather than complementary, methods to accomplish the same general function of volume measurement and (2) there is no teaching or suggestion of how *Young*’s acoustic volume indicator 10 could determine a volume level of ink bag 10 (rather than the volume of ink in an outer chamber), which is the entire point of *Yamaguchi*.

Moreover, *Young* specifically indicates that an invasive-type indicator, such as plate 20, would not be used in conjunction with a pressurized container using acoustic volume indicator 10. In other words, *Young* clearly teaches away from combining the acoustic volume technique

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of *Young* with the invasive-type indicator of *Yamaguchi*. In sum one of ordinary skill in the art would not have and could not have combined *Yamaguchi* with *Young*.

Thus, Applicant respectfully submits that independent claim 1 is patentable over the applied references.

Further, Applicant respectfully submits that independent claims 10, 15, 24, 31, and 40 are patentable at least because there is no motivation to combine the two references as explained in greater detail above and as submitted in the Amendment under 37 C.F.R. § 1.111 filed on November 4, 2005.

In addition, independent claim 10, among a number of unique features, recites:

a vibration activating unit provided on a first surface of said liquid container, for emitting a vibration to said liquid; and
a vibration detecting unit provided on a second surface of said liquid container so as to be opposed to said vibration activating unit;

The Examiner takes the position that since *Young* discloses the resonating means 24 (alleged vibration activating unit) being allegedly positioned next to the sensing means 30 (alleged vibration detecting unit), *Young* discloses that resonating means 24 and sensing means 30 are “opposed” to each other. Applicants respectfully submit that resonating means 24 and sensing means 30 are next to each other and are not “opposed” to each other. Thus, Applicants respectfully submit that independent claim 10 is patentable over the applied references.

Further, Applicants respectfully submit that rejected dependent claims 2-9, 16-26, 32-39, and 41-47 are allowable, at least by virtue of their dependency.

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Allowable Subject Matter

Applicant thanks the Examiner for indicating that claims 11-14 and 27-30 contain allowable subject matter. Applicant does not acquiesce to the Examiner's reasons for allowance. Applicant respectfully holds the rewriting of these claims in abeyance until arguments presented with respect to claim 1 have been reconsidered.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

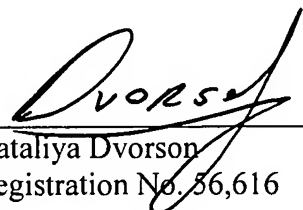
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